Developmental and Learning Sciences: A Multidisciplinary Competition

A Program of the Children's Research Initiative

Program Announcement

NSF 01-46

DIRECTORATE FOR SOCIAL, BEHAVIORAL, AND ECONOMIC SCIENCES
DIVISION OF BEHAVIORAL AND COGNITIVE SCIENCES

TARGET DATE(S): January 15 of each year, July 15 of each year

NATIONAL SCIENCE FOUNDATION

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SUMMARY OF PROGRAM REQUIREMENTS

Program Title: Developmental and Learning Sciences: A Multidisciplinary Competition

Synopsis of Program: This initiative aims to support studies that increase our understanding of cognitive, linguistic, social, cultural, and biological processes related to children's and adolescents' learning in formal and informal settings. Additional priorities are to support research on development and learning that: incorporates multidisciplinary, multi-method, microgenetic, and longitudinal approaches; develops new methods and theories; examines transfer of knowledge from one domain to another and from one situation to another; assesses peer relations, family interactions, social identities, and motivation; examines the impact of family, school, and community resources; assesses adolescents' preparation for entry into the workforce; and investigates the role of demographic characteristics and cultural influences on children's learning and development. Research supported by this initiative will add to our basic knowledge of children's learning and development, with the objective of leading to better educated children and adolescents who grow up to take productive roles as workers and as citizens.

Cognizant Program Officer(s):

- Dr. Rodney R. Cocking, Developmental & Learning Sciences, Program Director, Social, Behavioral, & Economic Sciences, Behavioral & Cognitive Sciences, 995, telephone: (703) 292-8732, e-mail: rcocking@nsf.gov.

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.075 --- Social, Behavioral and Economic Sciences

ELIGIBILITY INFORMATION

- **Organization Limit:** None
- **PI Eligibility Limit:** None
- **Limit on Number of Proposals:** None

AWARD INFORMATION

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 20-30
- **Anticipated Funding Amount:** A minimum of $5 million will be available for new awards.

PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** Standard Preparation Guidelines
- Standard GPG Guidelines apply.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Deadline/Target Dates

- **Letter of Intent Due Date(s):** None
- **Preproposal Due Date(s):** None
- **Full Proposal Due Date(s):** January 15 of each year, July 15 of each year

D. FastLane Requirements

- **FastLane Submission:** Full Proposal Required
- **FastLane Contact(s):**
  - BCSFASTLANE@NSF.GOV.

PROPOSAL REVIEW INFORMATION

- **Merit Review Criteria:** National Science Board approved criteria apply.

AWARD ADMINISTRATION INFORMATION

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.

I. INTRODUCTION

America’s success in this new century requires that our children grow up to take productive roles as workers and as citizens. Key elements of this success are children’s and adolescents’ learning in formal and informal settings and the cognitive, linguistic, social, cultural, and biological developments that undergird learning. Children’s and adolescents’ learning in the 21st century cannot be focused on acquiring a limited set of skills or body of knowledge that may become dated or obsolete. Learning in the 21st century must focus on flexibility in acquiring new knowledge and skills, on the transfer of knowledge and skills from one situation to another, and on creative problem-solving. Learning begins early in a child’s life, long before school entry, and is a lifelong process. The current picture of children’s learning is mixed. In 1997, a National Science and Technology Council report, "Investing in our Future: A National Research Initiative for America’s Children for the 21st Century," outlined the significant advances in our knowledge on child and adolescent development. At the same time, this report emphasized that many challenges to understanding learning and development remain. For example, American children’s reading and science test scores are improving but still fall short of the test performance of children in other industrialized countries. Among the challenges are significant gaps in our fundamental knowledge about children’s learning and children’s development in the context of extraordinary demographic and technological changes. A solid body of research on children’s learning and development, including studies of early learning and studies extending through the adolescent years, is necessary for improvements in children’s future prospects. The science of learning also needs to be linked more closely with educational policy and practice. The research-to-practice link should be reciprocal rather than unidirectional. Not only should research findings be communicated to practitioners but also information from practical settings should be used to refine theories and research on children’s learning and development.

The Program on Developmental and Learning Sciences is a program of the Children's Research Initiative. The national research needs are outlined in the National Science and Technology Council's 1997 report: "Investing in our Future: A National Research Initiative for America's Children in the 21st Century;" the President's Committee of Advisors on Science and Technology, 1997 Report to the President on the Use of Technology to Strengthen K-12 Education in the U.S.

II. PROGRAM DESCRIPTION

Because of the urgent need for additional basic research on children’s learning and development, the Social, Behavioral, and Economic Sciences Directorate of the National Science Foundation (NSF) is now accepting proposals for research on Developmental and Learning Sciences. This competition aims to attract research proposals based on a broad definition of learning. The competition also aims to stimulate an integrative, multidisciplinary approach to the study of cognitive, linguistic, social, cultural, and biological processes of development that impact learning.

The primary objective of the Developmental and Learning Sciences competition will be to encourage and support research that:

- Increases our understanding of children's and adolescents' learning in formal and informal settings. This research will focus on mechanisms of development that explain when and how children and adolescents acquire new skills and knowledge.

The goal is to understand the fundamental cognitive, linguistic, social, and biological (e.g., neural, hormonal) processes of learning and development. Priority will be given to studies addressing one or more of the following:

- Fundamental research on developmental processes during the perinatal and prenatal periods, infancy, childhood, adolescence, and young adulthood.
- Studies of the relationships among biological, cognitive, linguistic, social, and emotional aspects of human learning and development over the life course.
- Brain processes in learning, including developmental cognitive neuroscience on how children learn, on neurologic pathways and brain adaptability, and experiential and environmental factors that stimulate learning and memory.
- Relationships among learning, creativity, and intelligence.
- Higher-order processes of learning, including critical thinking, communication, memory, language, mental representation, and other cognitive processes that maximize learning potential.
- Uses of technology to nurture children's learning and creative abilities, including the role of multimedia technologies on children's development.
- Relations between the development of specific and general forms of knowledge; age-related changes in the processes of transfer of knowledge in one domain to children's understanding of another domain.
- Multidisciplinary, multi-method, microgenetic, and longitudinal approaches to the study of learning and development during childhood and adolescence, including ethnograpohic research.
- Development of new methods, models, and theories for studying learning and development.
- Relations of children's and adolescents' learning to peer relationships, family interactions, social identities, and motivation.
- Studies of the multiple influences on children's learning and development, including the impact of family, school, community resources, and social institutions on the learning and development of children and adolescents.
- Research on how learning is mediated by peers, social institutions, the media, and popular culture.
- Relations of adolescents' learning and development to their preparation for entry into the workforce.
- The role of cultural influences and demographic characteristics (e.g., children's socioeconomic status, ethnicity, immigrant status, gender) on children's learning and development. The role of culture as internal processes (e.g., value perspectives, construction of meaning, etc.).

As indicated in the above listing of priorities, basic research may be funded on a wide range of topics; however, studies must be clearly linked to the primary objective.

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the Grant Proposal Guide are eligible to submit proposals under this program announcement/solicitation.

IV. AWARD INFORMATION

Awards will be made for workshops, conferences and research proposals. Award durations of one to five years will be considered. A minimum of $5 million will be available annually, subject to the availability of funds. Approximately 20 –30 grants will be awarded.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Web Site at: http://www.nsf.gov/cgi-bin/getpub?nsf012. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program solicitation number (NSF 01-46) in the program announcement/solicitation block on the NSF Form 1207, *Cover Sheet For Proposal to the National Science Foundation*. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost sharing is not required in proposals submitted under this Program Announcement.

C. Deadline/Target Dates

Proposals must be submitted by the following date(s):

January 15 of each year
July 15 of each year

Proposals received after the established target date may still be reviewed, although they may miss a particular panel or committee meeting.

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this Program Announcement through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: http://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call 1-800-673-6188.

Submission of Signed Cover Sheets. The signed copy of the proposal Cover Sheet (NSF Form 1207) must be postmarked (or contain a legible proof of mailing date assigned by the carrier) within five working days following proposal submission and be forwarded to the following address:

National Science Foundation
DIS – FastLane Cover Sheet
4201 Wilson Blvd.
Arlington, VA 22230

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

Proposals will be reviewed against the following general review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal and for which he/she is qualified to make judgements.

> **What is the intellectual merit of the proposed activity?**
> How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Principal Investigators should address the following elements in their proposal to provide reviewers with the information necessary to respond fully to both of the above-described NSF merit review criteria. NSF staff will give these elements careful consideration in making funding decisions.

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A summary rating and accompanying narrative will be completed and signed by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Mail Review followed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

NSF will be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 95 percent of proposals. The time interval begins on the proposal deadline or target date or from the date of receipt, if deadlines or target dates are not used by the program. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at its own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to the submitting organization by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1)* or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Web site at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the

NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF Grant Policy Manual (GPM) Chapter II, available electronically on the NSF Web site at http://www.nsf.gov/cgi-bin/getpub?gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Web site at http://www.gpo.gov.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented an electronic project reporting system, available through FastLane. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding Developmental and Learning Sciences: A Multidisciplinary Competition should be made to:

* Dr. Rodney R. Cocking, Developmental & Learning Sciences, Program Director, Social, Behavioral, & Economic Sciences, Behavioral & Cognitive Sciences, 995, telephone: (703) 292-8732, e-mail: rcocking@nsf.gov.

For questions related to the use of FastLane, contact:

* e-mail: BCSFASTLANE@NSF.GOV.
* FAX: (703) 292-9068

IX. OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding for research and education in science, mathematics, and engineering. The NSF Guide to Programs is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the Guide to Programs will be announced in the NSF E-Bulletin, which is updated daily on the NSF web site at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement/solicitation for further information.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090, FIRS at 1-800-877-8339.

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PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Pursuant to 5 CFR 1320.5(b), an agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Information Dissemination Branch, Division of Administrative Services, National Science Foundation, Arlington, VA 22230, or to Office of Information and Regulatory Affairs of OMB, Attention: Desk Officer for National Science Foundation (3145-0058), 725 17th Street, N.W. Room 10235, Washington, D.C. 20503.

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